IN THE CLAIMS

1. (Original) A method for operating a mobile station with a base station, comprising:

when the mobile station is in an Autonomous mode of operation, autonomously transmitting data from the mobile station to the base station on a reverse access channel or reverse supplemental channel;

in response to receiving an acknowledgment indication from the base station, that comprises a reverse channel assignment message for the mobile station, switching the mobile station to a Scheduled mode of operation; and

transmitting data from the mobile station on an assigned reverse channel.

2. (Original) A method as in claim 1, where transmitting from the mobile station to the base station to initiate the data transmission comprises transmitting a Supplemental Channel Request Message.

3. (Original) A method as in claim 1, where the reverse access channel comprises a Reverse Enhanced Access Channel and reverse fundamental channel or reverse dedicated channel.

4. (Original) A method as in claim 2, where the acknowledgment indication comprises a Supplemental Channel Assignment Message.

5. (Original) A method as in claim 4, where the acknowledgment indication further comprises power control bits and data rate grant bits.

6. (Original) A method as in claim 5, where the power control bits and data rate grant bits are received by the mobile station on a Common Power Control Channel.

7. (Original) A method as in claim 1, where transmitting the data from the mobile station on the assigned reverse channel comprises also transmitting mobile station buffer

activity bits and a data rate request bit, and further comprising receiving, from the base station, a power control bit, a data rate grant bit and an acknowledgment/non-acknowledgment indication.

8. (Original) A method as in claim 7, where the data rate request bit is transmitted as part of a dynamic buffer status report, and requests one of an increase in data rate, a decrease in data rate, or no change in the data rate.

9. (Original) A method as in claim 8, where the data rate grant bit is time multiplexed by the base station with the power control bit, and indicates one of a grant of the requested data rate or a denial of the requested data rate.

10. (Original) A mobile station, comprising:

an RF transceiver for conducting bidirectional wireless communications with a base station; and

a data processor operating under the control of a stored program for, when the mobile station is in an Autonomous mode of operation, autonomously transmitting from the mobile station to the base station on one of a reverse access channel and a reverse supplemental channel, said data processor being responsive to a reception of an acknowledgment indication from the base station, that comprises a reverse channel assignment message for the mobile station, for switching the mobile station to a Scheduled mode of operation and for transmitting data from the mobile station on an assigned reverse channel.

11. (Original) A mobile station as in claim 10, where when transmitting from the mobile station to the base station to initiate the data transmission the data processor transmits a Supplemental Channel Request Message

12. (Original) A mobile station as in claim 10, where the reverse access channel comprises a Reverse Enhanced Access Channel and reverse fundamental channel or reverse dedicated channel.

13. (Original) A mobile station as in claim 11, where the acknowledgment indication comprises a Supplemental Channel Assignment Message.

14. (Original) A mobile station as in claim 13, where the acknowledgment indication further comprises power control bits and data rate grant bits.

15. (Original) A mobile station as in claim 14, where the power control bits and data rate grant bits are received by the mobile station on a Common Power Control Channel.

16. (Original) A mobile station as in claim 10, where when transmitting the data from the mobile station on the assigned reverse channel the data processor also transmits mobile station buffer activity bits and a data rate request bit, and said data processor is further responsive for receiving, in response from the base station, a power control bit, a data rate grant bit and an acknowledgment/non-acknowledgment indication.

17. (Original) A mobile station as in claim 16, where the data rate request bit is transmitted as part of a dynamic buffer status report, and requests one of an increase in data rate, a decrease in data rate, or no change in the data rate.

18. (Original) A mobile station as in claim 17, where the data rate grant bit is time demultiplexed by the data processor with the power control bit, and indicates one of a grant of the requested data rate by the base station or a denial of the requested data rate.

19. (Original) A mobile station as in claim 10, where the mobile station and the base station communicate over a reverse synchronous code division, multiple access channel.

20. (Original) A method for operating a mobile station with a base station for transmitting data packets from the mobile station to the base station over a reverse supplemental channel, comprising:

when the mobile station is in an Autonomous mode of operation, autonomously transmitting from the mobile station to the base station initiate a data transmission from the mobile station to the base station, the transmission comprising a Supplemental Channel Request Message that is transmitted over a Reverse Enhanced Access Channel or a reverse supplemental channel;

receiving an acknowledgment indication from the base station over a Common Power Control Channel, the acknowledgment indication comprising a Supplemental Channel Assignment Message comprising power control bits and data rate grant bits;

in response to receiving the acknowledgment indication from the base station, switching the mobile station to a Scheduled mode of operation;

transmitting data packets from the mobile station on an assigned reverse channel, further comprising transmitting mobile station buffer activity bits and a data rate request bit, and

receiving, from the base station in response, a power control bit, a data rate grant bit and an acknowledgment/non-acknowledgment indication.

21. (Original) A method as in claim 20, where the data rate request bit is transmitted as part of a dynamic buffer status, QoS level and transmit power report, and requests one of an increase in data rate, a decrease in data rate, or no change in the data rate.

22. (Original) A method as in claim 21, where the data rate grant bit is time multiplexed by the base station with the power control bit, and indicates one of a grant of the requested data rate or a denial of the requested data rate.

23. (Original) A method for operating a mobile station (MS) with a base station (BS) for transmitting data packets from the mobile station to the base station over a reverse supplemental channel (R-SCH), wherein there exist at least four R-SCH states and at least eight transitions between the R-SCH states, where the at least four R-SCH states comprise a R-SCH initialization state, a R-SCH autonomous state, a R-SCH scheduled

state, and a R-SCH release state, comprising:

executing one of a plurality of techniques to initialize the R-SCH state, comprising one of,

sending a modified Supplemental Channel Request Message (SCRM) to the BS, and receiving from the BS an acknowledgement as a modified Extended Supplemental Channel Assignment Message (ESCAM), where the modified SCRM comprises at least one of MS buffer status, transmit power, Quality of Service (QoS) level and a preferred mode of R-SCH operation, said preferred mode of R-SCH operation being one of an Autonomous mode or a Scheduled mode, and where the modified ESCAM comprises information to identify the MS;

sending a Supplemental Channel Request Message (SCRM) to the BS, and receiving from the BS an acknowledgement as a modified Extended Supplemental Channel Assignment Mini Message (ESCAMM), where the ESCAMM comprises the information to identify the MS; and

sending a request over a Reverse Enhanced Access Channel (R-EACH), where the request comprises parameters that specify at least the preferred mode of R-SCH operation.

24. (Original) A method as in claim 23, where in the R-SCH autonomous state, an active MS accesses the R-SCH without prior authorization, and comprises, for constant data rate applications, one of:

sending data over the R-SCH autonomously using a data rate established by one of a plurality of rules, where an active MS is identified using at least one of medium access control identification (MAC_ID) information, that is used by the BS to distinguish between multiple autonomous mode MSs, and a MS long code; and

explicitly sending Rate Indication information over a reverse channel to indicate the data rate that is being used in a present R-SCH frame.

25. (Original) A method as in claim 24, where in the R-SCH autonomous state, and when operating with a variable data rate, the MS operates in a semi-scheduled mode by initially starting in the autonomous mode at a current data rate, and while sending data over the R-SCH, the MS sends a Data Rate Request to the BS for indicating one of a request to transmit on the R-SCH at a data rate of (current data rate + incremental rate), a request to transmit on the R-SCH at a data rate of (current data rate - decremented rate), or a request to transmit on the R-SCH at the current data rate.

26. (Original) A method as in claim 25, where the Data Rate Request comprises 1-bit of information with three-state modulation that is sent over one of an uplink overhead dedicated channel, a common channel, the R-SCH using a multiplexing option, or in a MS dynamic buffer status, QoS level and transmit power report to the BS.

27. (Original) A method as in claim 25, where the BS is responsive to a receipt of the Data Rate Request from the MS to either grant or deny the MS Data Rate Request using GRANT/DENY feedback information.

28. (Original) A method as in claim 27, where the GRANT/DENY feedback information is sent to the MS over power control sub-channels and is time-multiplexed with power control information.

29. (Original) A method as in claim 25, where R-SCH State/Mode Transitions between the R-SCH initialization state, the R-SCH autonomous state, the R-SCH scheduled state and the R-SCH release state occur as follows:

when transitioning from the R-SCH initialization state to the R-SCH autonomous state, the preferred mode of operation is embedded in a (modified) R-SCH assignment (mini) message;

when transitioning from the R-SCH initialization state to the R-SCH scheduled state, the preferred mode of operation is embedded in the (modified) R-SCH assignment (mini) message;

for a transition from the R-SCH autonomous state to remain in the R-SCH autonomous state, and in accordance with a first operational mode of operation, the MS remains in the R-SCH autonomous state while transmitting at the initial data rate, and in accordance with a second operational mode of operation, the MS remains in the autonomous state when a reverse data rate indication indicates a legitimate data rate as opposed to an indication to switch to the R-SCH scheduled state;

for a transition from the R-SCH scheduled state to remain in the R-SCH scheduled state, the MS remains in the R-SCH scheduled state so long as there is at least not a new mode switch request in the SCRM;

for a transition from the R-SCH autonomous state to the R-SCH scheduled state, and in accordance with the first operational mode of operation, the preferred mode of operation is embedded in the (modified) R-SCH assignment (mini) message, and in accordance with the second operational mode of operation, a state transition trigger is implemented with the QoS level;

for a transition from the R-SCH scheduled state to the R-SCH autonomous state, and in accordance with the first operational mode of operation, a R-SCH-assigned duration timer is used as the state transition trigger such that after the duration of the scheduled transmission, the MS reverts back to the R-SCH autonomous state, in accordance with the second operational mode of operation, the preferred mode of R-SCH operation is embedded in the (modified) R-SCH assignment (mini) message, and in accordance with a third operational mode of operation, the state transition trigger is implemented with the QoS level; and for transitions to the R-SCH release state from the R-SCH autonomous and scheduled states, R-SCH release messages and procedures are used.

30. (Previously Presented) A method as in claim 29, where for the transition from the R-SCH autonomous state to the R-SCH scheduled state in accordance with the second operational mode of operation, the state transition trigger is implemented by an increase in a required QoS level, and for the transition from the R-SCH scheduled state

to the R-SCH autonomous state in accordance with the third operational mode of operation, the state transition trigger is implemented by a decrease in a required QoS level.

31. (New) A method for operating a mobile station with a base station, comprising:

when the mobile station is in an autonomous mode of operation, autonomously transmitting data from the mobile station to the base station on a reverse channel;

the mobile station receiving an assignment message from the base station, the assignment message comprising an acknowledgment/non-acknowledgment indication, power control bits, and data rate grant bits;

in response to receiving an acknowledgment indication from the base station, switching the mobile station to a scheduled mode of operation; and

transmitting data from the mobile station on an assigned reverse channel.

32. (New) A mobile station, comprising:

an RF transceiver for conducting bidirectional wireless communications with a base station; and
a data processor operating under the control of a stored program for, when the mobile station is in an autonomous mode of operation, autonomously transmitting from the mobile station to the base station on a reverse channel, the mobile station receiving an assignment message from the base station, the assignment message comprising an acknowledgment/non-acknowledgment indication, power control bits, and data rate grant bits, said data processor being responsive to a reception of an acknowledgment indication from the base station for switching the mobile station to a scheduled mode of operation and for transmitting data from the mobile station on an assigned reverse channel.

33. (New) A method for operating a mobile station with a base station for transmitting

data packets from the mobile station to the base station over a reverse supplemental channel, comprising:

when the mobile station is in an autonomous mode of operation, autonomously transmitting from the mobile station to the base station to initiate a data transmission from the mobile station to the base station, the transmission comprising a supplemental channel request message that is transmitted over a reverse channel;

in response to receiving an acknowledgment indication from the base station, switching the mobile station to a scheduled mode of operation;

transmitting data packets from the mobile station on an assigned reverse channel, further comprising transmitting mobile station buffer activity bits and a data rate request bit, and

receiving, from the base station in response, a power control bit, a data rate grant bit and an acknowledgment/non-acknowledgment indication.